

INHIBITION OF NONINACTIVATING Na CHANNELS OF MAMMALIAN
OPTIC NERVE AS A MEANS OF PREVENTING OPTIC NERVE
DEGENERATION ASSOCIATED WITH GLAUCOMA

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Abstract of the Invention

10 A method and composition for altering a plausible
sequence of pathological events in retinal ganglion cells
associated with glaucoma, the sequence including membrane
depolarization, influx of millimolar amounts of Na^+ via
non-inactivating Na^+ channels, and the lethal elevation of
cell Ca^{2+} due to reversal of the $\text{Na}^+/\text{Ca}^{2+}$ exchanger. The
15 method includes blocking, by administration of a selected
composition, of associated, non-inactivating Na^+ channels
in retinal ganglion cells in order to limit $\text{Na}^+/\text{Ca}^{2+}$
exchange in the retinal ganglion cells and prevent
buildup of the Ca^{2+} level in the retinal ganglion cells
20 to a lethal level. The results in a method of preventing
retinal ganglion cell death, associated with glaucoma, by
administering to the optic nerve of a mammal, a compound
which blocks the non-inactivating sodium ion channels of
the optic nerve. Alternately, said invention relates to
a method of preventing optic retinal ganglion cell death
25 in a human by administering to the retinal ganglion cells
of said human a compound which blocks the non-
inactivating sodium ion channel of the retinal ganglion
cells.

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